

AD-A119 169

ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/8 4/2
193188 MLRS, MISSILE NUMBERS BN-201, BN-135, BN-163, BN-181, BN--ETC(U)
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19318B MLRS, Missile Number BN-201, BN-135, BN-163, BN-181, BN-204, BN-189, Round Number V-295/PQT-35 thru V-300/PQT-40 are presented in tabular form.		

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INTRODUCTION

19318B MLRS, Missile Numbers BN-201, BN-135, BN-163, BN-181, BN-204, and BN-189, Round Numbers V-295/PQT-35 thru V-300/PQT-40, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1503:30, 1503:35, 1503:41, 1503:48, 1503:54, and 1521:05 MDT, 05 Aug 1982. The scheduled launch times were 1500, 1500:04.5, 1500:09, 1500:13.5, 1500:18, and 1505 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from pilot-balloon observations at:

SITE AND ALTITUDE

WSD	2 km
DON	2 km

(2) Air structure data (rawinsonde) were collected at the following sites:

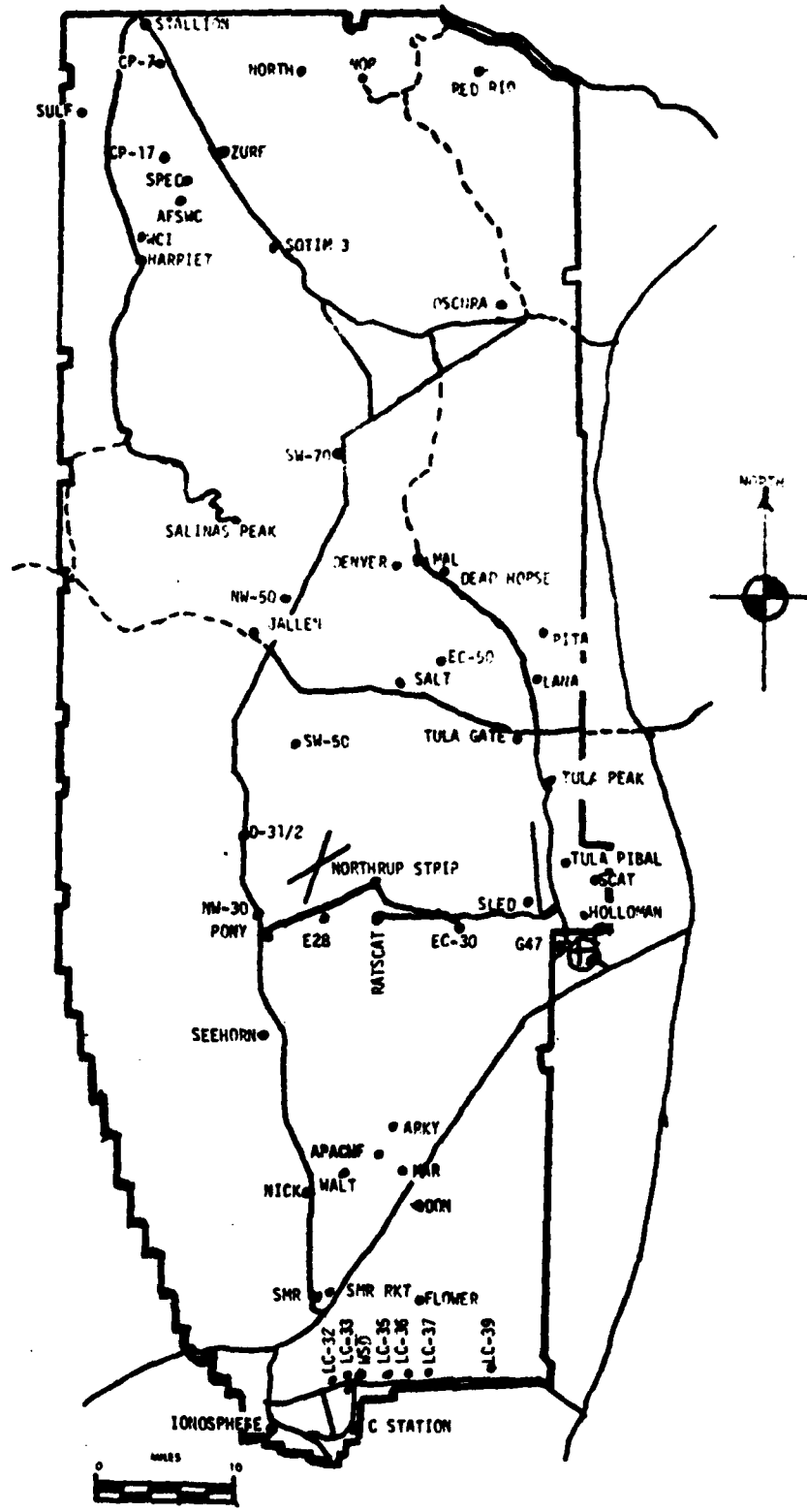
SITE AND TIME

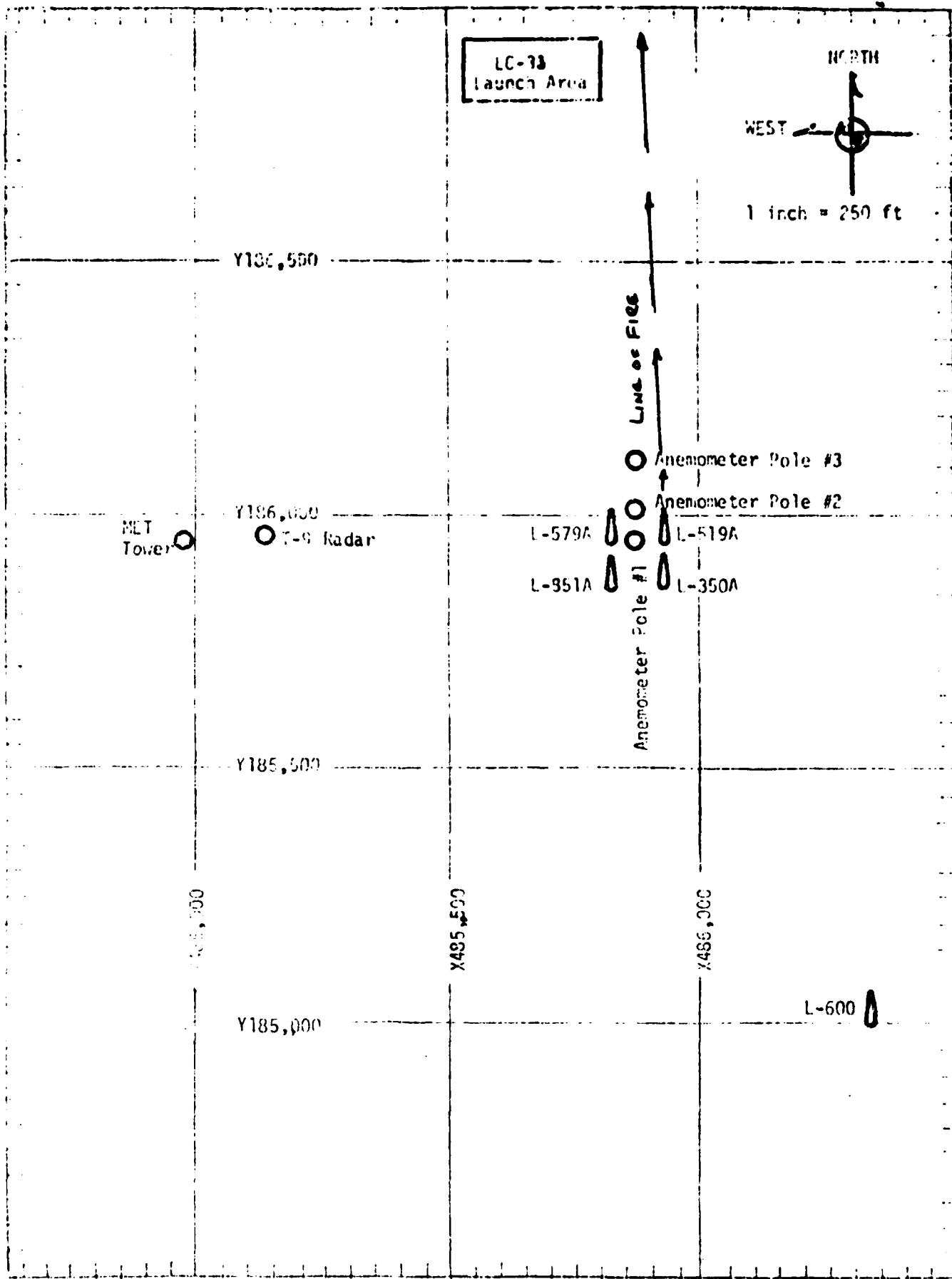
WSD	1230 MDT
LC-37	1415 MDT
WSD	1515 MDT



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Unannounced	
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A	

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE 1									
STATION LC-33									
DATE 05 DAY 82 MONTH YEAR									
X= 484.982.64 Y= 185.957.73 H= 3995.00									
TIME M D I	PRESSURE mbs	TEMPERATURE of OC	DEW POINT of OC	RELATIVE HUMIDITY %	DENSITY gm/m ³	DIRECTION degs	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY
1503	881.2	34.4	12.6	27	990	165	*07		40
1521	881.2	34.5	13.1	28	990	160	*09		

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	TYPE	AMT	TYPE	AMT	TYPE	
	8	SC	1	AS	0	CI	25,000
	8	SC	1	AS	0	CI	25,000

PSYCHROMETRIC COMPUTATION

TIME:	1503	1521
DRY BULB TEMP.	34.4	34.5
WET BULB TEMP.	19.7	20.0
WET BULB DEPR.	14.7	14.5
DEW POINT	12.6	13.1
RELATIVE HUMID.	27	28

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

1503 MDT

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.29 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	148	10	-30	178	08	-30	187	08
-20	140	09	-20	175	09	-20	180	09
-10	125	11	-10	163	10	-10	163	06
0.0	122	09	0.0	153	08	0.0	149	09
+10	127	09	+10	158	07	+10	158	08

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	MISG	MISG	-30	MISG	09
-20	MISG	MISG	-20	MISG	09
-10	MISG	MISG	-10	MISG	08
0.0	MISG	MISG	0.0	MISG	06
+10	MISG	MISG	+10	MISG	06

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	175	09	-30	159	07
-20	179	09	-20	174	10
-10	180	08	-10	149	10
0.0	177	09	0.0	180	10
+10	175	09	+10	168	09

TABLE 4. LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

1521 MDT

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X435,874.29 Y136,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.20 Y186,116.00 H4063.92 83.0 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	157	16	-30	175	12	-30	201	17
-20	162	15	-20	165	12	-20	202	16
-10	154	10	-10	168	07	-10	194	15
0.0	160	10	0.0	159	08	0.0	200	12
+10	165	11	+10	160	08	+10	199	10

TABLE 5. LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (200 FT. TALL)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	MISG	MISG	-30	MISG	11
-20	MISG	MISG	-20	MISG	09
-10	MISG	MISG	-10	MISG	09
0.0	MISG	MISG	0.0	MISG	08
+10	MISG	MISG	+10	MISG	09

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
-30	184	10	-30	183	10
-20	184	09	-20	193	10
-10	191	06	-10	203	07
0.0	186	06	0.0	201	06
+10	198	09	+10	186	10

TABLE

E-TIME PILOT-BALLOON MEASUREMENT DATA

DATE 05 Aug 1982

SITE: WSD

TIME: 1505 MDT

WSTN COORDINATES:

X= 488,717.25

Y= 184,862.84

H= 3,993.75

SITE: DON

TIME: 1503 MDT

WSTN COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	180	08
150	175	17
210	173	15
270	162	18
330	150	17
390	148	18
500	137	17
650	129	16
800	129	17
950	131	15
1150	120	15
1350	128	14
1550	126	13
1750	127	10
2000	124	11

Data obtained from Nike-Herc Radar
Tracked pilot-balloon observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	150	03
150	134	23
210	134	25
270	134	23
330	135	20
390	135	17
500	136	12
650	123	15
800	126	19
950	127	18
1150	118	11
1350	120	17
1550	125	24
1750	123	24
2000	123	22

Data obtained from single theodolite
Tracked pilot-balloon observation.

TABLE-7

AIMING AND T-TIME COMPUTER MET MESSAGES

WSD 1230 MDT	LC-37 1415 MDT	WSD 1515 MDT
METCM1324064	METCM1324063	METCM1324064
051850122884	052030124881	052130122883
00427005 30780884	00178006 30700881	00258008 30870883
01353008 30530875	01266017 30680871	01321009 30600873
02327006 30180850	02278015 30440847	02335014 30460899
03085001 29760812	03252005 30070800	03279008 30100812
04168006 29250767	04182009 29580764	04239011 29620767
05183010 28820723	05183010 29090721	05172009 29170723
06176020 28490681	06182016 28630630	06166017 28710632
07172020 28160642	07204016 28240640	07156018 28320641
08220014 27870604	08228017 27900603	08189018 27950605
09136015 27480563	09229017 27550567	09212016 27490569
10230013 27030533	10241021 27110533	10227018 27130534
11250021 26710501	11222021 26760500	11234023 26790502
12222021 26210454	12202022 26310454	12210023 26410456

STATION ALTITUDE 3955.00 FEET MSL
 5 AUG 64 1230 LDT
 ASCENSION NO. 381

SIGNIFICANT LEVEL DATA

27/002000
 WHITE SANDS

TABLE-8

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
854.4	3989.0	32.1	12.0	37.0
870.0	4431.0	28.9	12.0	37.0
890.0	5144.2	20.7	12.0	41.0
910.0	7000.7	19.0	9.0	55.0
930.0	9357.9	14.1	5.7	70.0
950.0	10629.3	11.7	0.2	85.0
968.9	11070.9	9.3	0.7	90.0
984.5	12037.1	7.7	0.1	93.0
997.6	14349.3	0.2	-0.6	90.0
1005.8	15249.6	3.0	-0.4	90.0
1006.4	17740.2	-2.7	-13.7	90.0
1020.3	18277.6	-4.7	-9.0	72.0
1031.1	18255.3	-5.0	-8.7	73.0
1060.1	19280.2	-5.7	-20.1	51.0
1080.0	19000.3	-6.4	-16.3	50.0
1099.9	21189.4	-9.2	-17.6	51.0
1110.0	22420.0	-13.2	-17.8	60.0
1130.3	23221.0	-13.2	-21.6	90.0
1140.0	25249.8	-16.4	-29.2	32.0

UPPER AIR DATA
210002USBT
WHITE SANDS

STATION ALTITUDE 3549.00 FEET MSL
5 AUG. 62 1230 ZDT
ASCENSION NO. 381

GEODETIC COORDINATES
32.60043 LAT DEG
106.57055 LON DEG

TABLE-9

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3549.00	884.4	34.1	37.0	1001.7	643.2	240.0	5.1	1.000295
4000.00	884.1	34.0	37.0	1001.6	683.1	240.0	5.0	1.000295
4500.00	869.2	28.7	37.3	996.5	679.1	237.7	4.0	1.000285
5000.00	854.4	27.2	40.1	984.7	677.3	233.4	2.9	1.000280
5500.00	839.7	25.6	43.0	972.9	675.5	225.7	1.9	1.000277
6000.00	825.1	24.0	45.9	961.2	673.7	201.7	1.0	1.000273
6500.00	810.9	22.5	48.7	949.7	671.9	114.4	1.0	1.000269
7000.00	796.8	20.9	51.6	938.5	670.1	88.1	2.3	1.000265
7500.00	783.0	19.3	54.4	927.2	668.2	90.3	5.0	1.000261
8000.00	769.5	17.9	58.4	915.4	666.6	94.7	5.0	1.000258
8500.00	755.7	16.5	62.7	903.5	665.0	95.4	6.1	1.000255
9000.00	742.5	15.1	66.9	891.9	663.4	95.6	7.4	1.000251
9500.00	729.1	13.8	69.9	880.0	661.9	97.7	9.0	1.000247
10000.00	716.1	12.9	73.5	867.4	660.7	100.0	11.5	1.000241
10500.00	703.5	11.9	65.1	854.9	659.5	101.0	14.6	1.000236
11000.00	690.6	11.1	66.9	842.2	658.5	109.9	19.1	1.000229
11500.00	678.1	10.4	64.1	829.5	657.5	97.4	20.1	1.000225
12000.00	665.9	9.0	62.7	818.0	655.8	96.0	20.9	1.000217
12500.00	653.7	8.1	57.9	806.7	654.6	96.5	21.4	1.000210
13000.00	641.8	7.5	52.1	794.0	653.7	98.4	19.5	1.000205
13500.00	630.0	6.9	46.3	781.6	652.8	104.9	17.4	1.000196
14000.00	618.5	6.3	40.6	769.5	652.0	112.4	15.8	1.000190
14500.00	607.1	5.2	43.0	757.9	650.8	119.0	14.2	1.000186
15000.00	595.9	4.2	46.5	746.7	649.6	126.2	14.5	1.000183
15500.00	584.9	3.1	49.7	735.7	648.5	129.4	14.5	1.000180
16000.00	573.9	1.8	47.2	725.4	646.7	132.5	14.6	1.000174
16500.00	563.1	.6	44.0	715.5	645.1	137.1	14.1	1.000169
17000.00	552.6	.7	41.9	705.4	643.6	130.5	13.5	1.000165
17500.00	542.2	-2.0	31.9	695.5	642.0	129.4	13.0	1.000160
18000.00	531.9	-3.6	24.6	684.2	640.2	131.0	14.4	1.000156
18500.00	521.8	-5.0	17.4	676.2	638.7	134.4	15.7	1.000156
19000.00	511.8	-5.4	14.8	665.0	637.9	140.1	20.1	1.000153
19500.00	502.0	-6.2	11.5	654.9	636.9	147.1	22.4	1.000151
20000.00	492.5	-7.1	8.5	644.9	635.8	147.4	23.9	1.000149
20500.00	482.7	-8.0	4.9	635.4	634.8	147.2	22.9	1.000147
21000.00	473.4	-8.9	1.4	625.2	633.7	152.1	21.4	1.000145
21500.00	464.2	-10.2	61.9	616.1	632.1	145.0	21.0	1.000143
22000.00	455.1	-11.8	60.9	605.7	630.2	117.7	20.9	1.000141
22500.00	446.1	-13.2	55.5	595.9	628.5	117.7	21.5	1.000137
23000.00	437.3	-15.2	55.5	585.5	628.4			

GEODETIC COORDINATES
32.40043 LAT DEG
106.37055 LONG DEG

UPPER AIR DATA
27700ZJST
WHITE SANDS

TABLE-9 CONT'D

STATION ALTITUDE 5909.00 FEET MSL
5 AUG. 82 1230 HRT
ASCENSION NO. 381

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
						DIRECTION DEGREES (TM)	SPEED KNOTS	
			47.2	574.9	027.9	106.0	22.1	1.000134
23500.0	420.7	-13.0	43.0	505.5	026.9			1.000131
24000.0	420.2	-14.4	32.2	555.9	025.8			1.000128
24500.0	411.8	-15.6	34.0	540.0	024.8			1.000125
25000.0	403.0	-16.0						

STATION ALTITUDE 3920.110 FEET MSL
 5 AUG. 82 1230 MDT
 ASCENSION NO. 381

MANDATORY LEVELS
 21/0020361
 WHITE SANDS
 TABLE-10

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5145.	26.7	12.4	41.	232.1	2.6
800.0	6867.	21.2	10.7	51.	91.5	2.0
750.0	8707.	15.7	9.2	64.	95.5	6.6
700.0	10519.	11.7	6.2	69.	101.2	15.5
650.0	12645.	7.9	-0.5	56.	96.4	20.2
600.0	14800.	4.6	-6.5	45.	125.5	14.5
550.0	17104.	-1.0	-12.8	40.	131.5	15.9
500.0	19572.	-6.4	-18.5	58.	140.9	20.7
450.0	22249.	-12.7	-17.7	66.	121.0	20.9
400.0	25182.	-16.4	-29.2	52.		

STATION ALTITUDE 4051.37 FEET MSL
 5 AUG. 82 1415 MDT
 ASCENSION NO. 74

SIGNIFICANT LEVEL DATA

2170180074
 LC-37

TABLE-11

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE		REL. HUM. PERCENT
	AIR DEGREES	DEWPOINT CENTIGRADE	
880.5	32.0	14.0	32.0
872.7	32.1	13.3	32.0
850.0	29.7	12.2	34.0
779.8	22.0	10.4	40.0
732.0	19.3	9.8	36.0
724.9	18.3	9.4	63.0
700.0	15.3	9.0	74.0
674.8	11.0	7.1	74.0
662.0	9.9	3.0	62.0
637.4	8.1	.5	39.0
621.2	3.9	-1.3	39.0
593.2	4.9	-3.9	33.0
570.7	2.3	-9.0	43.0
530.4	-2.9	-14.3	41.0
516.0	-4.0	-9.4	69.0
500.0	-0.2	-8.3	84.0
487.3	-9.0	-13.7	38.0
459.7	-9.0	-10.3	38.0
430.3	-12.0	-19.3	37.0
422.2	-12.0	-24.8	33.0
400.0	-15.8	-33.0	21.0

STATION ALTITUDE 4051.37 FEET MSL
 5 AUG. 82 1415 MDT
 ASCENSION NO. 74

STATION ALTITUDE 4051.37 FEET MSL
 5 AUG. 52 1415 MDT
 ASCENSION NO. 74

UPPER AIR DATA
 27701800/4
 TABLE-12

GEOMETRIC COORDINATES
 32.40175 LAT DEG
 100.51232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
4051.4	880.5	32.0	35.0	998.0	683.0	100.0	6.0	1.000240
4500.0	867.2	31.5	32.5	965.1	682.2	101.9	6.0	1.000241
5000.0	852.6	31.0	33.8	973.6	680.4	104.1	6.0	1.000270
5500.0	838.1	29.5	36.0	961.6	678.8	106.4	5.9	1.000273
6000.0	823.7	27.1	38.4	949.6	677.2	108.5	5.9	1.000270
6500.0	809.6	25.7	40.8	937.9	675.6	110.4	5.9	1.000260
7000.0	795.6	24.3	43.2	926.5	674.0	113.1	5.9	1.000263
7500.0	782.2	22.8	45.6	914.9	672.3	119.0	6.5	1.000259
8000.0	768.6	21.5	49.3	903.9	670.5	122.6	7.6	1.000256
8500.0	755.2	19.0	53.2	893.1	668.0	120.2	8.5	1.000253
9000.0	742.0	16.2	57.4	881.6	667.1	125.5	8.8	1.000250
9500.0	728.9	16.9	61.7	870.0	665.0	128.7	9.4	1.000247
10000.0	716.0	15.4	66.9	858.9	663.9	126.0	11.1	1.000245
10500.0	703.3	13.9	72.5	848.2	662.1	124.0	12.7	1.000242
11000.0	690.7	12.0	74.0	837.0	660.5	125.5	14.6	1.000237
11500.0	678.3	11.5	75.0	825.7	659.0	127.4	16.5	1.000230
12000.0	666.1	10.2	76.5	815.0	657.5	129.3	17.9	1.000220
12500.0	654.0	9.5	81.0	803.5	656.1	132.1	17.8	1.000213
13000.0	642.1	8.4	89.0	791.3	655.0	134.9	17.7	1.000208
13500.0	630.4	7.2	95.0	780.7	653.4	137.4	16.9	1.000203
14000.0	618.9	5.8	107.5	770.5	651.8	141.0	16.0	1.000196
14500.0	607.5	5.4	120.7	757.4	651.2	143.8	15.7	1.000193
15000.0	596.3	4.9	135.3	744.8	650.6	145.9	16.0	1.000189
15500.0	585.2	3.9	145.0	736.1	649.2	148.0	16.4	1.000183
16000.0	574.4	2.7	146.5	725.9	647.7	150.2	17.1	1.000178
16500.0	563.6	1.4	146.7	715.7	646.2	152.2	17.9	1.000174
17000.0	553.0	.1	142.1	705.9	644.5	154.1	18.7	1.000170
17500.0	542.6	-1.5	141.6	696.2	642.9	155.9	19.4	1.000167
18000.0	532.4	-2.6	141.1	686.6	641.2	155.4	20.1	1.000163
18500.0	522.5	-3.8	135.3	676.2	640.0	152.5	20.7	1.000164
19000.0	512.5	-4.8	121.3	665.7	638.8	148.7	20.6	1.000164
19500.0	502.5	-5.9	111.4	655.3	637.6	144.8	20.6	1.000163
20000.0	492.8	-6.8	100.4	645.2	636.2	141.4	20.5	1.000159
20500.0	483.3	-7.8	90.9	636.8	635.4	138.0	19.6	1.000154
21000.0	474.0	-8.4	82.5	628.7	634.4	134.6	19.1	1.000150
21500.0	464.8	-9.2	75.0	621.6	633.4	131.5	19.7	1.000146
22000.0	455.7	-10.1	68.0	616.7	632.5	128.2	20.2	1.000143
22500.0	446.8	-11.2	61.5	612.5	630.9	124.0	21.5	1.000140
23000.0	438.1	-12.4	56.5	608.5	629.2	119.0	22.4	1.000138
23500.0	429.4	-12.6	46.4	603.6	629.1			1.000134

GEODETIC COORDINATES
32.40175 LAT DEG
106.31232 LON DEG

UPPER AIR DATA
2170180076
LC-37

TABLE-12 cont'd

STATION ALTITUDE 6051-50 FEET MSL
5 AUG 62 1415 MDT
ASCENSION NO. 74

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	421.0	-12.0	34.2	502.8	628.9			1.0000130
24500.0	416.0	-14.0	29.1	554.3	627.4			1.0000127
25000.0	404.4	-15.1	23.9	543.9	625.9			1.0000124

STATION ALTITUDE 4051.57 FEET MSL
 5 AUG. 82
 ASCENSION NO. 74 1415 MDT

MANDATORY LEVELS

2770180074

LC-37

TABLE-13

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5086.	29.7	12.2	34.		104.5	5.9
700.0	6847.	24.7	11.1	42.		112.4	5.9
550.0	8089.	19.0	9.8	55.		102.3	6.6
400.0	10620.	13.5	9.0	74.		105.6	13.2
250.0	12655.	9.0	7.8	81.		115.0	17.7
100.0	14815.	5.1	-3.4	54.		125.2	15.9
50.0	17127.	-0.3	-11.6	42.		134.2	19.0
30.0	19602.	-6.2	-8.5	84.		125.9	20.6
20.0	22287.	-10.8	-17.5	58.		112.4	20.9
10.0	25255.	-15.8	-33.0	21.			

STATION ALTITUDE 3000.00 FEET MSL
 5 AUG. 82 1515 MDT
 ASCENSION NO. 382

SIGNIFICANT LEVEL DATA
 2170020382
 WHITE SANDS

GEODETIC COORDINATES
 52.40045 LAT DEG
 100.57055 LON DEG

TABLE-14

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	DEWPOINT	MEL. HUM. PERCENT
MILLIBARS	MSL FEET	DEGREES	CENTIGRADE	
885.00	3000.00	55.4	14.5	32.00
872.1	4350.5	51.5	15.1	55.00
850.00	5110.9	49.5	16.9	30.00
759.00	10299.5	15.6	7.2	59.00
700.00	10655.4	14.4	6.4	67.00
670.5	11840.8	10.9	7.4	79.00
602.6	14751.2	5.5	-4.3	49.00
578.6	15858.4	4.1	-6.4	76.00
560.7	16070.5	-0.2	-8.4	65.00
555.2	17026.9	-0.7	-5.5	70.00
558.9	17714.1	-1.9	-10.7	51.00
524.7	18409.0	-3.4	-13.0	45.00
509.4	19176.8	-4.9	-18.5	34.00
500.0	19657.0	-6.1	-15.5	47.00
469.8	21256.0	-7.4	-17.5	45.00
440.5	22555.0	-10.5	-16.9	50.00
439.5	22900.5	-11.5	-19.4	51.00
425.2	23788.5	-12.5	-50.1	21.00
400.0	25315.5	-15.5	-54.5	18.00

UPPER AIR DATA
470002582
WHITE SANDS
TABLE-15

STATION ALTITUDE 3909.00 FEET MSL
5 AUG. 62 1515 MDT
ASCENSION NO. 382

GEODETIC COORDINATES
32.40043 LAT DEG
100.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
3989.00	883.00	33.4	32.0	996.4	884.5	143.0	8.0	1.000279
4000.00	882.7	33.3	32.0	996.2	884.4	143.1	8.0	1.000288
4500.00	867.9	31.0	33.0	987.6	881.6	150.1	7.9	1.000282
5000.00	853.2	29.6	33.0	974.8	880.3	155.1	7.8	1.000279
5500.00	838.5	28.4	37.7	962.2	878.8	160.1	7.9	1.000275
6000.00	823.0	27.0	39.9	949.9	877.2	165.1	7.9	1.000272
6500.00	809.7	25.7	42.2	937.8	875.6	169.5	8.4	1.000268
7000.00	795.7	24.3	44.4	925.9	874.1	174.8	9.4	1.000264
7500.00	781.9	22.9	46.6	914.2	872.5	179.1	10.0	1.000260
8000.00	768.3	21.3	48.8	902.7	870.8	181.1	9.4	1.000256
8500.00	755.0	20.2	51.0	891.5	869.2	181.1	9.1	1.000252
9000.00	741.9	18.8	53.2	880.2	867.6	180.9	9.5	1.000248
9500.00	729.1	17.4	55.5	869.2	866.0	181.1	10.5	1.000243
10000.00	716.5	16.0	57.7	858.3	864.3	181.1	11.7	1.000239
10500.00	703.9	14.7	63.5	846.9	862.9	180.7	13.6	1.000238
11000.00	691.3	13.4	70.5	835.5	861.4	180.4	15.6	1.000236
11500.00	679.0	11.9	75.5	824.8	859.7	180.1	16.3	1.000233
12000.00	666.7	10.6	77.4	813.9	858.1	180.0	16.9	1.000228
12500.00	654.6	9.7	72.5	802.2	856.6	180.0	17.4	1.000220
13000.00	642.7	8.8	67.1	790.6	855.6	180.0	17.4	1.000212
13500.00	631.0	7.8	61.9	779.2	854.3	180.0	17.4	1.000205
14000.00	619.5	6.9	56.8	767.9	853.1	180.0	17.2	1.000198
14500.00	608.2	6.0	51.6	756.8	851.8	180.0	17.0	1.000192
15000.00	597.0	4.7	54.5	746.3	850.4	180.0	17.0	1.000189
15500.00	586.0	3.2	64.8	736.4	848.6	180.0	16.9	1.000189
16000.00	575.1	1.7	70.5	726.7	846.8	180.0	16.2	1.000186
16500.00	564.3	.3	64.8	717.1	845.1	180.0	17.0	1.000180
17000.00	553.7	-7	64.5	706.0	844.0	180.0	17.6	1.000176
17500.00	543.5	-13.5	56.9	695.3	842.8	180.0	18.5	1.000171
18000.00	533.0	-20.5	48.5	684.9	841.4	180.0	19.4	1.000165
18500.00	522.9	-30.0	43.7	674.7	840.1	180.0	20.8	1.000161
19000.00	512.9	-40.0	36.5	664.4	838.8	180.0	22.2	1.000156
19500.00	503.1	-50.7	32.7	654.4	837.5	180.0	23.0	1.000155
20000.00	493.4	-60.4	26.6	643.4	836.7	180.0	23.4	1.000153
20500.00	483.9	-68.8	23.9	632.0	835.2	180.0	23.9	1.000150
21000.00	474.6	-76.2	23.5	620.4	833.7	180.0	24.9	1.000147
21500.00	465.4	-80.0	23.9	609.6	834.8	180.0	23.9	1.000144
22000.00	456.3	-82.2	27.9	601.5	833.5	180.0	27.5	1.000142
22500.00	447.5	-80.4	27.5	592.5	831.9	180.0	27.5	1.000140
23000.00	438.7	-77.5	27.5	583.1	830.7	180.0	27.5	1.000137

STATION ALTITUDE 3929.00 FEET MSL
 5 AUG. 82 1515 MNT
 ASCENSION NO. 382

UPPER AIR DATA
 21/0020382
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE-15 cont'd

GEOMETRIC ALTITUDE	PRESSURE	TEMPERATURE	REL. HUM.	DENSITY	SPEED OF	WIND DATA	INDEX
MSL FEET	MILLIBARS	AIR DEWPOINT DEGREES CENTIGRADE	PERCENT	GRAMS/CUBIC METER	SOUND KNOTS	DIRECTION DEGREES(TN)	OF REFRACTION
23500.0	450.1	-11.9	51.5	575.2	529.8		1.000132
24000.0	421.6	-12.7	20.0	565.8	628.8		1.000128
24500.0	413.3	-13.8	19.0	554.9	627.5		1.000126
25000.0	405.1	-14.8	18.0	546.1	626.2		1.000124

STATION ALTITUDE 5989.00 FEET MSL
 5 AUG. 84 1515 '00T
 ASCENSION NO. 382

MANDATORY LEVELS
 C170020502
 WHITE SANDS
 TABLE-16

GEODETIC COORDINATES
 52.40043 LAT DEG
 106.37033 LON DEG

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
820.0	5107.	29.2	12.9	50.	150.2	7.8
800.0	6808.	24.7	11.5	44.	151.3	9.1
750.0	8711.	19.6	9.5	52.	116.0	9.2
700.0	10645.	14.4	8.4	67.	90.0	14.2
650.0	12084.	9.3	4.2	70.	90.0	17.4
600.0	14850.	5.1	-4.0	51.	108.4	17.0
550.0	17155.	-1.0	-6.5	60.	124.4	17.9
500.0	19629.	-6.1	-15.5	47.	128.5	23.1
450.0	22322.	-10.0	-18.6	49.	119.5	21.3
400.0	25272.	-15.5	-34.5	18.		

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-8